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# Wisconsin Recycling Means Business

Profiles from Wisconsin's Recycling Economy



Wisconsin Department of Natural Resources  
Bureau of Waste & Materials Management  
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# Wisconsin Recycling Means Business: Profiles from Wisconsin's Recycling Economy

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Profiles by Eileen Hocker, Tressie Kamp, Sarah Murray  
Design by Sarah Murray

## On the cover

**First row, from left:** Participants in a "waste sort" for Madison Metropolitan School District; compost processing at The Bruce Company of Wisconsin, Inc.; workers install Structural Insulated Panels made by Plymouth Foam Incorporated.

**Second row, from left:** A worker recycles cardboard at a Veridian Homes building site; a worker shows off plastic sheeting made from recycled plastic by N.E.W. Plastics Corp.; scrap metal is collected for processing by Samuels Recycling Company.

**Third row, from left:** Workers sort electronics collected by Cascade Asset Management, LLC; foundry sand and pottery cull from Kohler Company are used as structural fill on a building site; workers recycle metal scrap for a project that received help from WasteCap Wisconsin.



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Wisconsin Department of Natural Resources  
Bureau of Waste and Materials Management  
P.O. Box 7921  
Madison, WI 53707  
[Waste.Materials@dnr.state.wi.us](mailto:Waste.Materials@dnr.state.wi.us)

# Table of contents

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<b>Acknowledgments</b>	<b>4</b>
<b>Foreword</b>	<b>5</b>
<b>Wisconsin: a recycling leader</b>	<b>6</b>
<b>Recovering the “waste stream”</b>	<b>7</b>
<b>Glossary of terms</b>	<b>9</b>
<b>Recycling business locations</b>	<b>10</b>
<b>Summary of profiles</b>	<b>12</b>
<b>Company profiles</b>	
The Bruce Company of Wisconsin, Inc.	17
Cascade Asset Management, LLC	18
CBT Wear Parts, Inc.	19
CRT Processing Corporation	20
Faherty Inc.	21
Georgia-Pacific	22
Goodwill Industries of South Central Wisconsin	23
Habitat for Humanity of Dane County ReStore	24
Humane Manufacturing Company LLC	25
Kohler Company	26
Miller Brewing Company	27
Minergy Corp.	28
N.E.W. Plastics Corp.	29
Packaging Corporation of America	30
Plymouth Foam Incorporated	31
Printpack Inc.	32
Sadoff & Rudoy Industries, LLP	33
Saint-Gobain Containers	34
Samuels Recycling Company	35
SCA Tissue	36
Veridian Homes	37
Wausau Tile	38
Wisconsin Paperboard Corp.	39
<b>Resources and other success stories</b>	
Badger State Industries	43
Madison Metropolitan School District	44
Trig's Foods	45
WasteCap Wisconsin	46
Wisconsin Be SMART Coalition	47
<b>Index by company name</b>	<b>48</b>
<b>Index by county</b>	<b>49</b>
<b>Index by material</b>	<b>50</b>

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Cynthia G. Moore  
Recycling Program Coordinator

# Foreword

We all know that waste reduction, reuse and recycling are good for the environment. These actions conserve natural resources, save energy and help limit impacts to global climate by reducing greenhouse gas emissions. Yet as important as these environmental arguments are, they may overshadow an even more important benefit: the critical role of recycling in the economy. Recovered recyclables provide crucial raw materials for a variety of industries in Wisconsin, the United States and the global economy. The value of these materials—in particular steel, plastic and paper—is increasing due to strong demand from developing countries and renewed economic growth at home.

This publication highlights the important role recycling plays in Wisconsin's economy by presenting the stories of a number of businesses around the state. These businesses collect or use recycled materials, find markets for materials that would otherwise end up in the landfill and explore new ways to reduce waste and increase recycling.

These are only some of the many success stories of recycling to be found all over Wisconsin. With the leadership of these and other businesses, underpinned by the inherent economic value of recycled metals, plastics and fiber, our state can continue to improve and expand its recycling efforts, saving valuable resources from landfills and generating jobs in the process. Businesses in Wisconsin rely on recycling to grow Wisconsin's economy. Their successes prove that recyclables are indeed too valuable to waste.



P. Scott Hassett  
Secretary, Wisconsin Department of Natural Resources



N.E.W. Plastics Corp. of Luxemburg uses plastic from milk jugs (bottom) and other containers to manufacture plastic sheeting for truck liners (top) and plastic lumber. (Top photo by Robert Queen; bottom photo by Karin Olefsky.)



# Wisconsin: a recycling leader

**W**isconsin is nationally recognized for its recycling program. Well over 90% of Wisconsin residents support recycling and participate in recycling programs. We divert over 40% of our waste materials from landfills through recycling, reuse, waste reduction and composting, and recover more than 50% of the newspaper, cardboard, bottles and cans recycled every day at Wisconsin homes and businesses.

With such a strong foundation, it would be easy to be satisfied with maintaining the status quo. However, accepting the status quo is not what has made Wisconsin a leader. Despite our relatively high recycling rate, we continue to landfill many highly recyclable materials at a net loss to our economy. Recyclable resources, once landfilled, are lost to commerce forever. The greatest opportunities for increased resource recovery in Wisconsin are in residential and business paper, used electronics, construction and demolition debris, and food and other organic materials.

Not all of the recycled materials generated in Wisconsin are actually used here. But all these materials are traded every day on national and global commodity markets, and there is strong competition for recovered materials among the global markets.

The number and range of American industries that rely on recycled resources for their production continues to grow—but there is a very real concern that without enough recovered materials, some American plastics and paper mills and metal producers might have to close their doors. As the box on this page shows, recycling and reuse can drive significant job creation—sometimes dozens of jobs for every 10,000 tons of material recycled or reused in a year. By contrast, landfilling the same amount of material creates only one job.

## The changing recycling industry

During the past several years, Wisconsin has enjoyed strong markets and robust demand for most recycled materials. Wisconsin paper mills use various grades of recycled paper generated throughout the

### Number of jobs created each year per ton of material recycled/reused

#### Product reuse

Computer reuse:	296
Textile reclamation:	85
Wooden pallet repair:	28

#### Recycling-based manufacturers

Paper mills:	18
Glass product manufacturers:	26
Plastic product manufacturers:	93
Composting:	4

Source: Institute for Local Self-Reliance, Washington, D.C., 1997. Figures based on interviews with select facilities around the country.

Midwest as feedstock to create tissue or boxboard. Metal processors continue to aggressively collect and process material throughout the state. That material may end up being manufactured into new Harley-Davidson engines or steel structural components for such projects as the new Madison Overture Center for the Arts.

While early state recycling efforts in the 1990s focused on increasing markets for materials banned from the landfill—such as paper, aluminum cans and plastic bottles—lately we have seen a dramatic increase in demand for new recycled materials, driven by the needs of both domestic and offshore manufacturers. There are expanding markets for batteries; fluorescent light bulbs; electronic equipment such as televisions, computers and cell phones; industrial byproducts; and construction and demolition debris. These new markets justify the commitment Wisconsin businesses have made to preventing discarded materials from being wasted in landfills.

The businesses highlighted in this publication are committed to strong recycling and reuse principles. Their commitment makes environmental sense and it makes sense for Wisconsin's economy. ■

# Recovering the “waste stream”

The amount of waste disposed of in Wisconsin landfills has continued to increase, reaching more than 11 million tons in 2005, up from about 9 million tons in 1995.

In using the term “waste,” however, it is easy to forget that the vast majority of what is disposed of is highly usable material. An office memo, a plastic bottle, a cardboard box, a wooden pallet, an old computer—these are all commodities desired by the growing Wisconsin recycling industry. These resources only become “waste” when we make the mistake of putting them in a garbage can.

What are the major recoverable materials in the disposal stream? Below is a sampling of “wastes” that Wisconsin recyclers can easily turn into usable raw materials and products:

**Aluminum:** Aluminum cans are one of the most valuable of all recyclables because of the large amounts of energy needed to produce new aluminum. Although aluminum is only a small fraction of landfilled material, the more than 16,000 tons of cans and 15,000 tons of other aluminum that end up in Wisconsin landfills each year represent a significant economic loss (see box).

**Electronics:** Computers, computer equipment, cell phones, TVs and other electronics represent a growing disposal challenge, especially since many of these products have hazardous components such as lead and mercury. In 2006, it is predicted that 101,000 tons of electronics will be discarded in Wisconsin alone.

**Ferrous metals:** Iron-based metals are used in a va-

## 2005 value of recyclables landfilled in Wisconsin

Aluminum cans:	\$21 million
Aluminum (other):	\$15 million
Cardboard:	\$17 million
Ferrous metals (incl. cans):	\$9 million
Newspapers & magazines:	\$13 million
Office & mixed paper:	\$19 million
Plastic containers:	\$19 million
<b>Total:</b>	<b>\$113 million</b>

Sources: 2002 DNR Waste Composition Study (tonnages); Recycler's World (8/2005, prices)

riety of products, including appliances, cars, building materials and many metal cans. More than 170,000 tons of ferrous metals enter Wisconsin landfills each year, accounting for about 4% of all landfilled materials.

**Glass:** The use of recycled glass, or cullet, to make new bottles and jars saves glass manufacturers a large amount of energy and improves their profitability. More than 40,000 tons of glass end up in Wisconsin landfills each year, representing about 1% of all landfilled materials.



**Organics (food and yard waste):** Food waste may include not only spoiled food and food scraps, but edible food thrown out by restaurants and others. Yard

*Continued on next page*

**In 2004, two-thirds of beverage containers were not recycled in the United States. If they had been, the energy saved could have supplied power for more than 2 million homes for one year.**

Source: Waste Management World, September-October 2005

*Continued from previous page*

waste, which includes leaves, branches and other materials less than 6 inches in diameter, is banned from Wisconsin landfills. Nearly 490,000 tons of food waste and another 60,000 tons of yard waste (almost all larger than 6 inches in diameter) end up in Wisconsin landfills each year, representing more than 10% of all landfilled materials.



**Paper:** Newspaper, office paper, cardboard and magazines are just some of the paper “grades” in growing demand from foreign and domestic paper mills, including a number of large mills in Wisconsin. Nearly 1 million tons of paper and cardboard end up in Wisconsin landfills each

year, representing more than 20% of the total landfilled materials.

**Plastic bottles:** Domestic and export markets have a growing appetite for recyclable plastic resins, especially given high oil prices. Nearly 500,000 tons of plastics go into Wisconsin landfills each year, or more than 10% of all landfilled materials. While not all of this is currently recyclable, nearly 40,000 tons of plastic containers representing significant economic value (see box) are among Wisconsin’s landfilled materials each year.

**Wood (untreated):** This is the largest single waste

### Recycling rates for materials banned from Wisconsin landfills

Aluminum containers:	55%
Corrugated cardboard:	72%
Glass containers:	57–74%
Magazines:	31–35%
Newspapers:	67%
Office paper:	28–57%
Plastic containers (#1 & #2):	41–51%
Steel containers:	54%
Tires	>95%
Yard waste	78%

Source: DNR Status of Recycling Report 2003

category found in Wisconsin landfills, representing nearly 13% of all landfilled materials. Nearly 610,000 tons of untreated wood, much of which could be reused or composted, end up in Wisconsin landfills each year, much of it from construction, remodeling and demolition projects. In total, construction and demolition debris—much of which could be recycled or reused—represents nearly 30% of all materials going into Wisconsin landfills each year.

There is work to do to recover more of these valuable materials, but the Wisconsin recycling economy is up to the challenge. The companies and organizations featured in this publication represent the thousands of Wisconsin businesses that incorporate recycling, reuse and waste reduction into their business every working day. ■

### Internet recycling resources

#### Wisconsin Department of Natural Resources Recycling Program

<http://dnr.wi.gov/org/aw/wm/recycle/index.html>

#### Associated Recyclers of Wisconsin

<http://www.arow-online.org/>

#### National Recycling Coalition

<http://www.nrc-recycle.org/>

#### U.S. Environmental Protection Agency recycling homepage

<http://www.epa.gov/garbage/recycle.htm>

#### University of Wisconsin-Extension Solid and Hazardous Waste Education Center

<http://www3.uwm.edu/Dept/shwec/>

#### WasteCap Wisconsin

<http://www.wastecapwi.org>

#### Wisconsin Be SMART Coalition

<http://www.besmart.org>



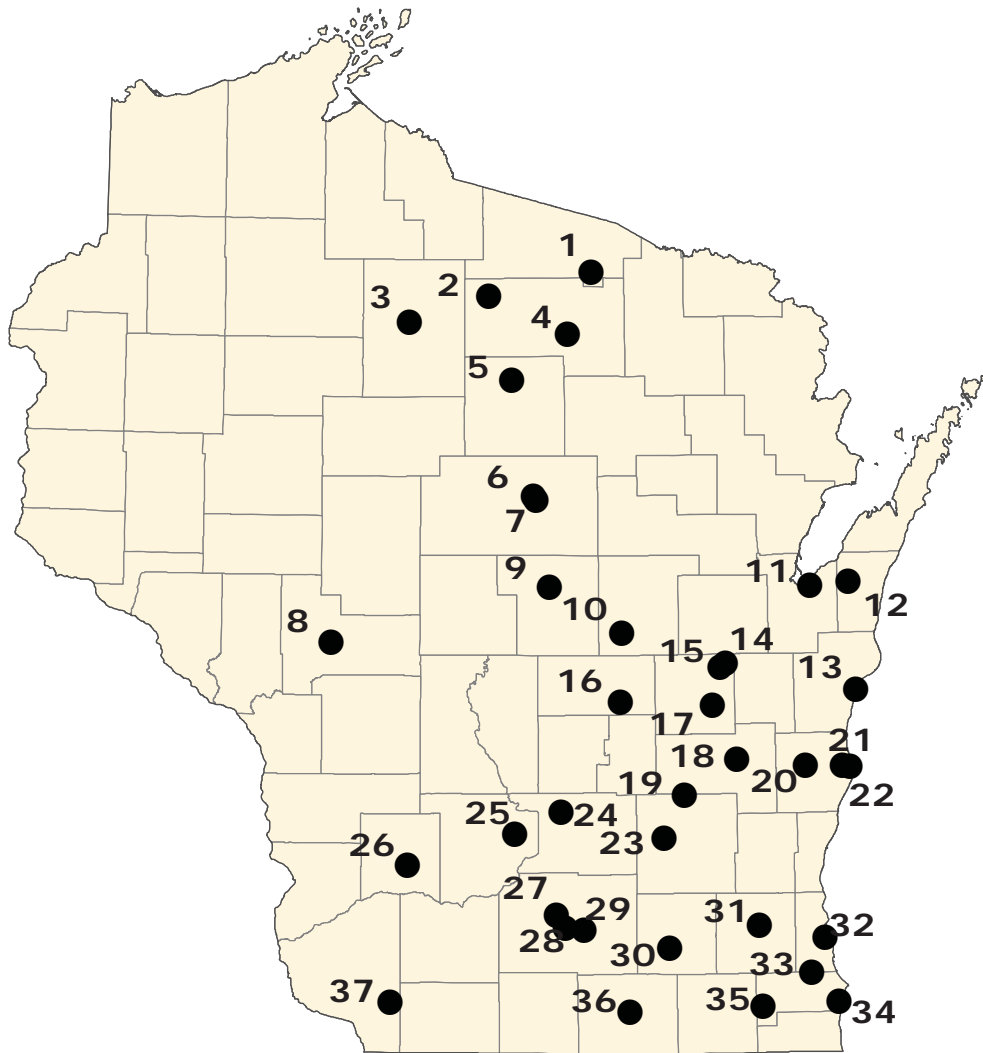
# Glossary of terms

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<b>Anaerobic digestion</b>	The decomposition of organic matter (such as food waste) without the presence of oxygen; one byproduct of the process is methane, which can then be converted to heat or electrical energy
<b>Asset management</b>	Processes for maintaining the security of information on computers and other electronic equipment when recycled
<b>Beneficial use/reuse</b>	Secondary use for materials that might otherwise be taken to a land-fill (for example, using grain from beer brewing in animal feed)
<b>Composting</b>	The decomposition of organic matter (such as yard waste and paper fibers) in the presence of oxygen to form material that can be used as a soil amendment; byproducts are carbon dioxide and water
<b>Construction and demolition (C&amp;D) debris</b>	Waste generated during the construction, remodeling, repair or demolition of buildings or other structures, including concrete, drywall, lumber, window glass, and plumbing pipes and fixtures
<b>Feedstock</b>	A raw material, such as plastic resin or paper fibers, used to manufacture a product such as plastic lumber or cardboard
<b>Manufacturing byproduct</b>	Material that is created and/or left over from a manufacturing process. One example is the sludge resulting from paper production
<b>Materials recovery facility (MRF)</b>	A facility where recyclable materials are sorted and processed (or sent to processors) for reuse or conversion to commodities
<b>Recovered material</b>	Material diverted from the municipal solid waste stream for the purpose of recycling, reuse or composting
<b>Recyclables</b>	Materials recovered from the solid waste stream and transported to a processor or end user for recycling
<b>Recycled fiber</b>	Recycled office paper, newspaper, cardboard and similar materials that are broken down into pulp and remanufactured into paper products
<b>Residuals</b>	Contamination of recyclable materials that remain after processing, composting, recycling, etc.; usually disposed of in landfill
<b>Sludge</b>	The semiliquid residue remaining from the treatment of industrial water (e.g., from paper mills) and wastewater or municipal wastewater

# Recycling business locations

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## Map legend

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| 1 Trig's Foods, Eagle River  | 23 Samuels Recycling Company, Beaver Dam   |
| 2 Trig's Foods, Minocqua   | 24 Goodwill Industries of South Central Wisconsin and Samuels Recycling Company, Portage   |
| 3 Georgia-Pacific, Phillips  | 25 Humane Manufacturing Company, Baraboo   |
| 4 Printpack Inc. and Trig's Foods, Rhinelander   | 26 CBT Wear Parts, Inc., and Goodwill Industries of South Central Wisconsin, Richland Center   |
| 5 Packaging Corporation of America, Tomahawk   | 27 The Bruce Company of Wisconsin, Inc., Middleton   |
| 6 Georgia-Pacific, Trig's Foods and Wausau Tile, Wausau                                      | 28 Goodwill Industries of South Central Wisconsin; Habitat for Humanity of Dane County ReStore; Madison Metropolitan School District; Sadoff & Rudoy Industries, LLP; Samuels Recycling Company; Veridian Homes; and WasteCap Wisconsin, Madison |
| 7 Sadoff & Rudoy Industries, LLP, Schofield  | 29 Goodwill Industries of South Central Wisconsin, Monona  |
| 8 Badger State Industries, Black River Falls   | 30 Goodwill Industries of South Central Wisconsin, Fort Atkinson   |
| 9 Trig's Foods, Stevens Point  | 31 Wisconsin Be SMART Coalition, Waukesha (and southeastern Wisconsin)   |
| 10 Samuels Recycling Company, Waupaca  | 32 Miller Brewing Company, WasteCap Wisconsin and Wisconsin Paperboard Corp., Milwaukee  |
| 11 Georgia-Pacific; Sadoff & Rudoy Industries, LLP; and Samuels Recycling Company, Green Bay | 33 Sadoff & Rudoy Industries, LLP, Franklin  |
| 12 N.E.W. Plastics Corp., Luxemburg  | 34 Badger State Industries, Racine   |
| 13 Sadoff & Rudoy Industries, LLP, Manitowoc   | 35 Saint-Gobain Containers, Burlington   |
| 14 SCA Tissue, Menasha   | 36 CRT Processing Corporation and Humane Manufacturing Company LLC, Janesville   |
| 15 Georgia-Pacific, Minergy Corp. and SCA Tissue, Neenah                                     | 37 Faherty Inc., Platteville   |
| 16 Badger State Industries, Redgranite   |  |
| 17 Georgia-Pacific, Oshkosh  |  |
| 18 Badger State Industries and Sadoff & Rudoy Industries, LLP, Fond du Lac                   |  |
| 19 Samuels Recycling Company, Waupun   |  |
| 20 Plymouth Foam Incorporated, Plymouth  |  |
| 21 Kohler Company, Kohler  |  |
| 22 Georgia-Pacific and Sadoff & Rudoy Industries, LLP, Sheboygan                             |  |

# Summary of profiles

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## Company profiles

<b>The Bruce Company of Wisconsin, Inc.</b>	Composts yard waste from surrounding communities and construction wood scrap; uses finished compost in application of new lawns
<b>Cascade Asset Management, LLC</b>	Demanufactures old electronics equipment (including computers) for recycling or refurbishes it for reuse
<b>CBT Wear Parts</b>	Manufactures replacement parts for recycling machinery; is pilot-testing equipment for large-scale digesting of food waste
<b>CRT Processing Corporation</b>	Recycles computer monitors and peripherals, TVs and other electronics; converts used cathode ray tubes into feedstock for new glass
<b>Faherty Inc.</b>	Family-owned recycling and solid waste provider in southwestern Wisconsin; operates materials recovery facility (MRF)
<b>Georgia-Pacific</b>	Uses recycled fiber to make household paper and tissue products; Green Bay mill is world's largest tissue recycling & production facility
<b>Goodwill Industries of South Central Wisconsin</b>	Collects and sells reusable household goods, including textiles, books and housewares, to fund its charitable activities
<b>Habitat for Humanity of Dane County ReStore</b>	Accepts usable construction and demolition waste or surplus supplies for resale to raise money for Habitat for Humanity
<b>Humane Manufacturing Company LLC</b>	Recycles tires into rubber mats for fitness, industrial and animal applications, such as mats for weight rooms and animal stalls
<b>Kohler Company</b>	Has found uses for manufacturing byproducts such as foundry sand; also recycles pottery scrap, scrap metal, paper and cardboard
<b>Miller Brewing Company</b>	Has found beneficial reuses for brewer's grain and yeast; has reduced amount of glass, aluminum and plastic in beer packaging
<b>Minergy Corp.</b>	Produces energy and glass aggregate (used in a number of products) from paper mill sludge and municipal sludge
<b>N.E.W. Plastics Corp.</b>	Produces plastic lumber for decks, fencing and other uses from recycled HDPE plastic (such as milk jugs)



# Summary of profiles cont'd

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<b>Packaging Corporation of America</b>	Uses recycled fiber in cardboard products; Tomahawk plant has found uses for concrete, boiler ash and cinders, and biogas
<b>Plymouth Foam Incorporated</b>	Produces foam packaging, product components and building materials using recycled expanded polystyrene (EPS) foam
<b>Printpack Inc.</b>	Recycles plastic film used to make candy bar wrappers and other packaging
<b>Sadoff &amp; Rudoy Industries, LLP</b>	Purchases scrap metals, including aluminum, brass, iron and steel, and processes them for reuse
<b>Saint-Gobain Containers</b>	Manufactures bottles for customers like Anheuser-Busch using 15-20% recycled glass
<b>Samuels Recycling Company</b>	Recycles scrap metals such as iron, steel, aluminum, brass and zinc from autos, foundries and other sources
<b>SCA Tissue</b>	Uses 100% recycled paper fiber to produce paper towels, napkins, tissues and other products for the away-from-home market
<b>Veridian Homes</b>	Recycles wood and vinyl scrap, cardboard, concrete and other materials from new home construction
<b>Wausau Tile</b>	Uses 100% recycled glass in several products, including floor tiles, outdoor tables and chairs, planters and waste receptacles
<b>Wisconsin Paperboard Corp.</b>	Uses recycled fiber to produce paperboard for packaging (such as cereal boxes), cardboard tubing and other uses

**“Overall, [recycling] is a social responsibility. ... If done right, it’s economically feasible for the operation, too.”**

**—Scott Busch, Cargill**

# Summary of profiles cont'd

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## Resources and other success stories

<b>Badger State Industries</b>	Trained inmates refurbish and recycle computer equipment, wheelchairs and handicapped shower equipment; pilot-testing use of biodiesel in delivery trucks
<b>Madison Metropolitan School District</b>	Conducted a waste sort to analyze success of school recycling efforts; working to increase recycling and reduce landfill costs
<b>Trig's Foods</b>	Operates a recycling center in Minocqua; emphasizes recycling at its many store locations in northcentral Wisconsin
<b>WasteCap Wisconsin</b>	Helps businesses reduce construction and demolition waste and increase recycling rates; also works on food waste and electronic recycling
<b>Wisconsin Be SMART Coalition</b>	Partnership of local communities, state agencies, nonprofits and businesses that promotes waste reduction, conservation, pollution prevention and sustainability



Workers at Cascade Asset Management's Madison facility sort electronic components for recycling. Cascade's 65 employees process computers, cell phones, stereos and other electronic equipment. Some is demanufactured and recycled, while other equipment is refurbished for reuse.

**“Since 2003, there’s been a 200% to 300% increase in value for our recyclable commodities such as circuit boards with precious metals, steel, copper wire and engineered plastics.”**

**—Neil Peters-Michaud,  
Cascade Asset Management, LLC**